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Each has been a capital in its time. Arlesians, steeped in their longer history, carefully preserve reminders of the First Century B.C. when their city was the capital of all Roman Gaul. York, with a shorter past, has not preserved the Colonial courthouse where the Continental Congress sat for nine months in 1777 when legislators were driven from Philadelphia by the British.

Yorkers who visit Arles bring back enthusiastic reports of the city where Vincent Van Gogh, famous Dutch painter, spent two of his most productive years. Summers, they say, remain as brilliant as Van Gogh painted them. Fascinated, today's visitor watches rough-riding *gardians*—cowboys—round up black cattle on the salty delta land, cheers Arles's famous bullfights in the handsome 2000-year-old arena where Romans staged holiday spectacles, smiles at wandering Gypsies.

I went last summer to see the Pennsylvania end of this grassroots diplomacy in action. "We're trying to build a bridge of friendship," the speaker was telling the gathering at the Rotary Club luncheon honoring Mayor Privat. "Over this bridge moves a two-way traffic of people and ideas."

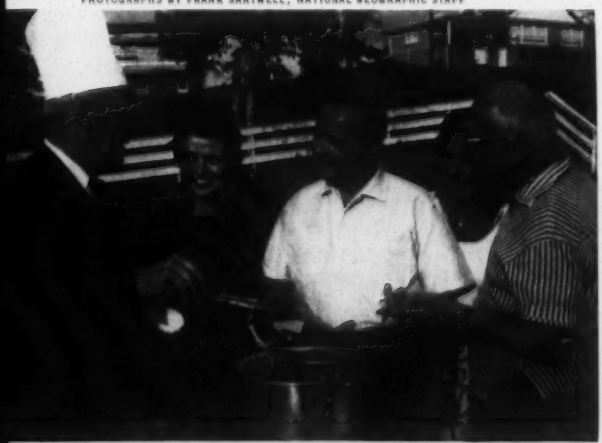
I found a startling example of this as I listened to attractive Madame Privat translate her husband's words into perfect English. "Why, she sounds as if she were brought up in Pennsylvania," I said to my luncheon host. "She was," he chuckled, and told me the story. Margaret Boltz, a French teacher in a York high school, went to Arles in 1956 as the first exchange teacher. She and Mayor Privat topped the people-to-people program by falling in love and marrying. Now, beside York's Mayor Fred A. Schiding, in the chef's hat below, she was introducing her white-shirted husband to the American hot dog. "*Mais, c'est délicieux,*" he smiled.

York's friendship with Arles was born in the schools. A dynamic elementary school director, Dr. Victoria Lyles, convinced the school board it should offer foreign languages in elementary grades. A similar idea about English had taken root in Arles. The two school systems discovered each other and the cities have been delightfully enmeshed in "people-to-people" programs ever since.

Today, 4,800 York children in grades three through six get 20-minute doses of French three times a week. Language study has spurred interest in all things French. Pen-pal letters wing across the Atlantic. Teachers struggle to help translate 3,000 letters a year. The schools swap tape recordings of classroom sessions. In York, assembly programs often take a French twist. So do essays, scrapbooks, art projects. York girls like Katy Feder, above, delight in dressing up in Arlesian costumes sent by pen-pal friends.

Youthful enthusiasm quickly spread to city elders.

PHOTOGRAPHS BY FRANK SARTWELL, NATIONAL GEOGRAPHIC STAFF



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TALE OF TWIN CITIES

By Arthur P. Miller, Jr.
National Geographic Staff

WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF

BENEATH sun-drenched columns in Arles, France, children whirl to music of flutes and drums.

Four thousand miles away, a world apart, another drum rolls as I watch high-stepping majorettes lead a shiny auto up the main street of York, Pennsylvania.

Sitting in the auto—the link between the two scenes—is the mayor of Arles. Charles Privat (pronounced *pree-vah*) has come to pay an official visit to Arles's "twin city," York.

Like some hundred other American cities and towns, this Pennsylvania community has adopted a city in a far corner of the world as its international neighbor. Each town affiliation, I learned, aims simply at making the world a friendlier place.

FRANK SARTWELL, NATIONAL GEOGRAPHIC STAFF

The idea has caught on since World War II. As a result, for thousands of citizens a pinprick on their globe has suddenly come alive. For folks in San José, California, it is the Japanese port city of Okayama; for Jamestown, New York, it is Jacobstad, Finland; for Boulder, Colorado, Meppel in the Netherlands; for Chester, Pennsylvania, it is Kumrovec, Yugoslavia.

Since they linked themselves in 1954, York and Arles have discovered they have much in common (see box page 28).

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the name for it, and helped M. Venzin memorize it. By the time he left, he not only knew his tools, but spoke better English than some American employees. He had polished his skill as a cabinetmaker, was popular at company picnics.

At the John Beattie home where he lived, M. Venzin "became like a brother to our two girls, Sandy and Jackyanne," Mrs. Beattie told me. "By the time he went back," she added with a wink, "Sandy knew there are other kinds of music than rock and roll. One day she went downtown to buy a pop record and came home with Ravel's *Bolero,* one of Edmund's favorites." Although M. Venzin is now back in France, the Beatties follow his fortunes closely.

Other cities across America are finding a town affiliation a rewarding experience. As befits towns of democratic nations, each affiliation has its own character.

Mutual interests touch at countless points. Radio stations trade special broadcasts. Housewives lean over the international fence to exchange recipes. Symphonies and choral groups sing for each other by recording.

Students in Kobe, Japan, no sooner finished parading to celebrate their city's link with Seattle, Washington (below), than they enthusiastically launched into an exchange of paintings and maps with their American cousins. Swimming teams in the far-apart cities engage in meets by racing against the clock, cabling times across the Pacific.

In Coral Gables, Florida, the International Petroleum Company paid the transportation costs for 18 Colombians to fly from Cartagena for a three-day visit. A retired architect from Montclair, New Jersey, donated four months' work on architectural projects to the mayor's office of Graz, Austria.

Exchange visits of mayors are a usual first step. The energetic mayor of Cortland, New York, got a bit more than he bargained for when he visited Peshawar, Pakistan. "Elected" honorary mayor, he was outfitted with the familiar Pakistani headpiece, a cap or *kubi* of Persian lamb. When he jokingly sat down at his host's desk, he was surprised to have an aide lay before him an official proclamation, sealing the affiliation of Peshawar and Cortland. By signing it he created a Pakistani statute.

In response to a barrage of pen-pal letters from Darien, Connecticut, youngsters in Mercara, India, shipped a half-ton baby elephant to America. Darien small fry visit their growing elephant regularly and report to Mercara that it is becoming rapidly Americanized. The elephant loves doughnuts.

AMERICAN MUNICIPAL ASSOCIATION

YOUR TOWN WANT A TWIN?

For information on how to start a town affiliation write the *American Municipal Association, 1612 K Street, N.W., Washington 6, D. C.*

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A mayor's committee went to work to broaden contacts. Parents signed up for French classes in night school. The York Camera Club sent over a selection of photographs. The York Art Club loaned some of its best paintings to Van Gogh's old home town. York celebrates Bastille Day each July 14; Arles observes the Fourth of July.

Yorkers planning a European vacation stopped at Arles to see Mayor Privat. Teachers and students are exchanged. Since 1954, three York teachers have taught Arlesian classes; three Arlesian teachers have come to York. Three French collegians have "traded places" with York students. The S. Morgan Smith Company, which makes turbines and pumps, hired a draftsman from Arles. York's Richard Brigstocke worked one summer near Arles as a shipping clerk. The Home Furniture Company brought Edmund Venzin from France as an apprentice cabinetmaker in its York plant.

FRANC SHOR, NATIONAL GEOGRAPHIC STAFF

FRANK SARTWELL, NATIONAL GEOGRAPHIC STAFF

If M. Venzin gained a lot from his two years in York, so did his host city. When he arrived at the furniture plant he knew but one English word—"Okay." His foreman showed him each tool, told him

TWIN CITY FACTS

Arles

Population—29,000

Geography—Situated at the apex of the salty, level delta of the Rhône River, 30 miles inland from the Mediterranean, in Provence.

Agriculture—Marshy river delta land utilized for beef cattle raising, salt production, and rice growing (above). The Camargue, as the delta region is known, produces one-third of France's rice. Olives, wine, sausages, and goat cheese are brought to Arles from the north, making it the market city for the region.

Industry—Metalworking, boatbuilding, sulphur refining, manufacture of newsprint and hats.

York

Population—61,000

Geography—Situated in rolling countryside, eight miles from the Susquehanna River in eastern Pennsylvania.

Agriculture—A patchwork of fertile farms surrounding York places the county among the 100 most fruitful in the United States. Commercial vegetables include sweet corn, tomatoes, peas, beans. To the busy farmers' market (left) growers bring poultry, eggs, and garden truck. The jolly stall-keeper at left is descended from early German settlers known as "Pennsylvania Dutch." She grows her own plump chickens for sale. Dairy and beef cattle also grow fat on York County grazing.

Industry—Leader in manufacture of refrigeration and air conditioning equipment. Produces tire chains, tractors, textiles, furniture, paper, books, electrical machinery, wallpaper—and artificial teeth.

n the West Under New Protection

century. The horses thrived in the Western Hemisphere, and the Spaniards established haciendas for raising livestock. Then Indian raids separated the Spanish settlers from their horses, and the abandoned animals took to the open ranges.

Newcomers—worn-out horses of the Indians and strays from ranches—swelled the numbers grazing on the western ranges until the Texas prairies at one time held possibly a million horses, with another million scattered as far north as Canada.

Nineteenth-century maps marked stretches of the Southwest as "Wild Horse Desert." Eastern horses of English descent did not predominate until the frontier was closed forever.

When they could, settlers and Indians captured the mustangs, a term derived from the Spanish *mesteño*, meaning strayed or wild. But there were plenty of vain chases. In the Oklahoma panhandle, one Starface, a deep bay with a white star-shaped patch on his forehead, chose death to captivity and plunged to the bottom of a canyon in front of his pursuers. There are stories of mustangs starving themselves to death after their capture.

Although the free mustang had almost disappeared by 1890, he cannot be forgotten. Western landmarks immortalize him: Wild Horse Creek, Wyoming; Wild Horse Lake, Montana; Mustang Mountain, Nevada; Mustang Island and Pinto Creek, Texas; Wild Horse Creek, Kansas; Horse Mesa Dam, Arizona; Wild-horse Mountain, Oklahome; and Horse Head Creek, South Dakota.

Homeless, today's mustangs roam the West, competing with sheep and cattle for grazing land, breaking fences, and luring domestic stock to the open range. So they are corralled (right) until ready to be shipped to canneries to be made into food for America's 27,000,000 cats and 26,000,000 dogs.

A few come to more glamorous ends. "Desert Dust," a palomino mustang captured in the Red Desert of Wyoming, has joined the circus. A wrangler (below) trains him for the show ring. L.B.

PHOTOGRAPHS BY CHARLES W. HERBERT, WESTERN WAYS

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Mustangs Roam th

THE MUSTANG'S GALLOP down the extinction trail has been slowed to a walk.

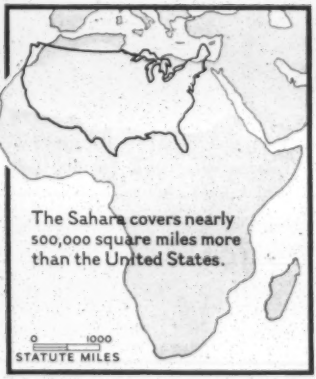
Congress last session made it a federal offense to round up the wild horses on public lands by airplane and motor vehicle.

Previously, planes (left) and trucks made capture easy by driving the animals to exhaustion. The proud mustangs could not escape man and his motors, and a glorious past faded toward an inglorious end. The heroes of legend were slaughtered and canned to feed America's pets. As mechanization on the farm spelled the end of Dobbin, machinery was also wiping out his wild brother.

Few mustangs are left. The herds may total 15,000—and those have little of the original Spanish blood that made them valuable mounts. Today's mustangs are chiefly descendants of domestic horses pushed off ranches when mechanization made them obsolete.

Time was when the mustang carried the West on its strong back. Horse and man opened up the territory as partners. Pony express riders, Indians, ranchers, cavalrymen, and plain cowpokes rode those mustangs that could be captured and broken. Not all the animals, however, would submit to a saddle. They were tough, light, and fast horses, as wild as the country they roamed. They were hard to catch and harder to tame.

Their ancestors came from Arabia by way of Spain. When the Arabs charged into Spain in 710, the defenders captured a number of their mounts. Cortés and Coronado brought descendants of these spirited, strong, and intelligent horses to the New World in the 16th



NGS MAP

giant cookie cutter lifted out a section the size of the 48 States—see map left—it would leave almost enough desert around the edges to make a cookie the size of Alaska. The Sahara includes all or part of Morocco, Algeria, Tunisia, Libya, Egypt, Sudan, French Equatorial and West Africa, and Spanish Sahara.

Sahara means desert in Arabic. But the region has not always been a hot, dry expanse of sand crossed only by camel caravans (cover). It once had enough rainfall. Then cave dwellers hunted with flint-tipped arrows and drew pictures on cave walls of themselves, of cattle, dogs, elephants, giraffes, hippopotamuses, and lions. These paintings show a land of forests, fertile plains, and abundant rivers.

The downpours stopped about 10,000 years ago, about the end of the Ice Age in Europe and America. The soil lost its moisture and the winds became dry. Rivers shrank from the sea and formed lakes which evaporated and left great salt deposits. Plants and animals died out. Wind scorched the trees and blew them away, then dried the soil and blew that away.

Today life clings to the oases scattered across the barren land. Wherever water lies near the surface, the green spots spring up—ranging in size from single wells or pools with a few trees to vast, irrigated palmeries and gardens stretching 40 or 50 miles. Below, picket fences protect the date palms near Timimoun, Algeria, from the shifting sands. A mud-walled village and a white tomb occupy unwatered land, to preserve all irrigated areas for crops. Water is so rare and valuable that land is measured and taxed not by its size, but by the number of trees the water nourishes.

Now minerals transform the Sahara. An oil boom builds roads, airfields, and towns with lawns and gardens. Also under the burning sands lie iron ore, copper, uranium, platinum, tin, coal, manganese, zinc, even diamonds, ready to be exploited. L.B.

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PHOTOGRAPHS BY GEORGE RODGER, MAGNUM; COVER PICTURE, EMIL BRUNNER

North Africa's Ocean of Sand

MATTOCKS CRUNCH dry sand. The foreman's drum and rhythmic chant keep time for the diggers as a jumble of sound punctures the hot silence of the Sahara.

When the mattocks are still, life-giving water will fill a new irrigation ditch, and man will have won another small victory in his long struggle against the desert.

Water, not man, rules the desert. Man is only an uninvited guest, tolerated so long as he can survive. Few men overstay their welcome. It takes more than one square mile of the Sahara, on the average, to support one person.

Salt water covers almost three-fourths of the earth's surface. Of the remaining land area, about two-fifths is desert, either waterless, like the Sahara, or too cold for crops, like the frozen north (See GSB, February 9, 1959).

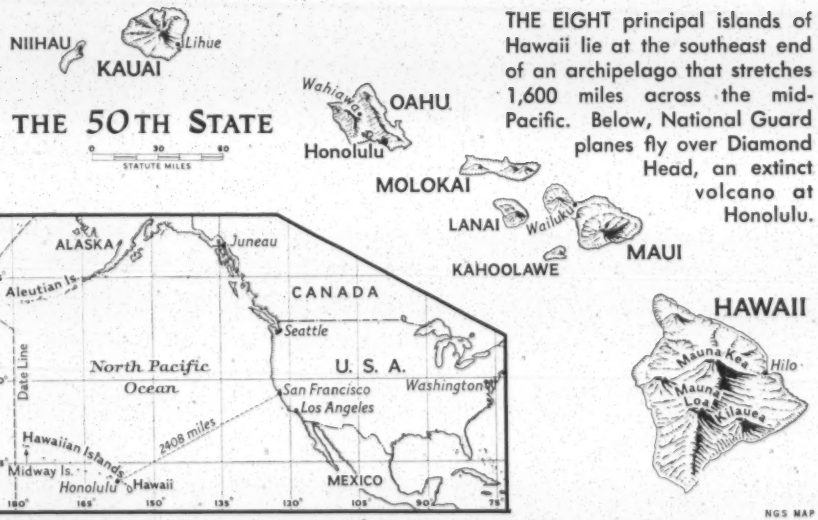
No land on earth suffers from total lack of rainfall. However, desert rainfall is usually not only scant but irregular. It may come in one or two heavy cloudbursts. In some parts of the Sahara, seven to ten rainless years may pass. Then one day a cloud appears on the horizon, lightning flashes, and everyone rushes for pots and cans to catch the precious water.

Where temperatures are high and moisture evaporates fast, plants and animals need more water to stay alive. Sahara temperatures in the height of the afternoon may climb to 130 degrees Fahrenheit. Desert soil, sandy and porous, does not retain water. Rain sifts underground, leaving the surface dry. Wind, too, helps keep deserts dry. It blows away the fine surface soil, leaving only subsoil. It blows sand into constantly shifting dunes, which have buried whole cities. Blown sand can change the course of a river and so corrode a rock that it topples over to be ground up into more sand—and more desert.

Every continent except Europe has deserts. Several hot deserts follow a dry belt stretching more than one-third the distance around the globe, from Africa's Atlantic coast northeast through Asia almost to the Pacific. The Sahara, the world's largest desert, lies in this belt.

Like most deserts, it lacks sharp boundaries. The fringes blend into surrounding regions. But roughly the Sahara stretches 3,000 miles from the Atlantic Ocean to the Red Sea, and is seldom less than 1,000 miles wide.

Its 3,500,000 square miles cover almost a third of the African continent. If a



THE EIGHT principal islands of Hawaii lie at the southeast end of an archipelago that stretches 1,600 miles across the mid-Pacific. Below, National Guard planes fly over Diamond Head, an extinct volcano at Honolulu.

the original Polynesians. Many things believed typically Hawaiian were also imported. The grass skirt is a 19th century import from Samoa and is now made in New Jersey. The ukelele, which is manufactured chiefly in Pennsylvania, came with the Portuguese. Even the lilting Hawaiian music is full of Dixieland.

Pineapples came from Jamaica, sugar cane from many places. In fact, Hawaii originally imported just about everything except the land, the climate, and the sea. Nothing so good as these could have originated in any place but Hawaii, the islanders say.

Attractive as it was, Hawaii remained unknown to the world at large until the arrival of Captain James Cook in 1778.

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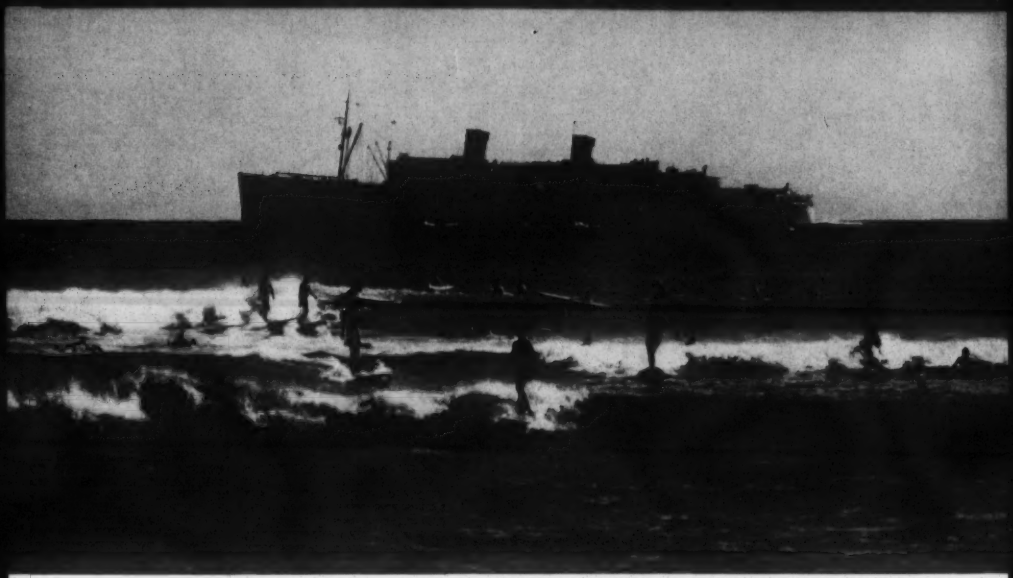

PHOTOGRAPHS BY NATIONAL GEOGRAPHIC PHOTOGRAPHER THOMAS NEBBIA

Hawaii Expands Uncle Sam's Horizons

THE UNITED STATES is a considerably different place now that Hawaii has joined Alaska in adding two new States to the Union. Our land now includes a section of the tropics and a polar seacoast. Our shores stretch west to the international date line. We have jumped to fourth place among world nations, replacing Brazil in size. Only Soviet Russia, Canada, and China are larger.

Polynesians and Eskimos now are American citizens, will help elect our next President. The *humu-humu nuku-nuku a-puaa*, tiny Hawaiian fish, and the giant Kodiak bear join the fascinating parade of United States wildlife. Live volcanoes spew and tundras glower on American soil. Coral atolls gleam from Pacific waters 2,400 miles west of California—as much a part of the country as the towers of New York or the wheatfields of Kansas.

Statehood for Hawaii will probably increase the tourist trade, but at the same time make us think in more workaday terms of what we have long regarded as a faraway paradise. If they look behind the resort veneer, vacationers who debark from ocean liners and airplanes will find life going on much as it does back home. The Waikiki surf riders above are knifing toward Honolulu, a mid-Pacific metropolis of 321,000 people who work in office buildings and live in homes much like those in the rest of the United States.

Sugar kings, cattle ranchers, and pineapple canners meet with boards of directors and bankers. Traffic jams the streets during rush hours. Television sets blink on at evening and housewives have kitchens full of appliances.

But Hawaii's almost constant 75-degree temperature, its tropical flowers, its volcanic mountains rising from brilliant beaches make it "the loveliest fleet of islands that lie anchored in any ocean." The new State includes eight principal islands and a string of islets and reefs stretching across 1,600 miles of sparkling ocean. Most of the islanders live on Oahu, site of Honolulu.

In land area (almost 6,500 square miles) Hawaii ranks 47th among the States, being larger than Rhode Island, Delaware, and Connecticut. It stands 44th in population with 663,000 people.

Racially, Hawaii is an efficient melting pot. Many bloodstreams, including Polynesian, Japanese, Chinese, Filipino, Caucasian, and others, have flowed together to create the Hawaiian-American—on all counts a desirable citizen.

All Hawaiians were immigrants, even

PHOTOGRAPHS BY WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF

After Cook came merchant seafarers, stripping the islands of their fragrant sandalwood. Next arrived American whalers, who caroused on the beautiful islands while their ships were fitted for Pacific and Arctic voyages.

Meanwhile, King Kamehameha I, the "Napoleon of the Pacific," conquered all rival Hawaiian chiefs to form a kingdom that was to welcome another group of immigrants in 1820—New England missionaries. Many of the straight-laced virtues taught and practiced by these God-fearing men and women persist in the islands today.

The last Hawaiian monarch was Queen Liliuokalani, who wrote the haunting song, "Aloha Oe." Her regime was overthrown in 1893, and a republic was formed the following year. Just before the turn of the century, the United States Congress acceded to the request of the Hawaiians and voted to annex the islands. Hawaii became a territory and immediately began the fight for statehood.

The islands have more variety than many mainland States. Hawaii, the "big island" holds the world's largest volcano and the nation's second largest cattle ranch (above). Below, specialized machines help workers pick pineapples on Lanai, the "pineapple island." R.G.

U. S. A. QUIZ

Without looking at the map on the previous page, see if you can answer the following questions, remembering that Alaska and Hawaii are now States:

1. What is the northernmost State?
2. The westernmost State?
3. The southernmost State?
4. What State was replaced in each instance, if there was a change?

Answers:

1. *Alaska*
2. *Alaska*
3. *Hawaii*
4. *Minnesota, California, Florida*

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